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ANCHORING BISCUIT DEVICE FOR JOINING TWO ADJACENT BOARDS

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ANCHORING BISCUIT DEVICE FOR
JOINING TWO ADJACENT BOARDS
(Attorney Docket No.HWE-103A)

BACKGROUND OF THE INVENTION

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1. Field of the Invention

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The present invention is directed to an improved biscuit for joining adjacent boards. More specifically, the invention is an anchoring biscuit device, as well an anchoring half biscuit device which has the ability for pre-setting distances between adjacent boards and attaching to at least one board by means in addition to the biscuit itself. The anchoring biscuit device physically joins two adjacent boards in the same plane to a third, supporting board. The anchoring half-biscuit device joins two adjacent boards at right angles to one another.

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2. Information Disclosure Statement

The following patents are representative of
the state of the art for wood joining devices,
equipment and methods:

- 5 U.S Patent No. 2,332,081 to G.M. Hunt et al
is directed to a wooden panel. It is described as
a panel comprising wooden strips joined along
their edges with glue, each strip having at least
one groove in its edge matching groove in the
10 edge of the adjoining strip, an asbestos
millboard spline fitted in the matching grooves
and bridging the joint between the strips,
crossbands covering the strips on both sides of
the panel, and veneers covering the crossbands.
- 15 U.S Patent No. 4,641,988 to Ganner is
directed to a fitting for releasably joining two

structural components. It is illustrated for
releasably joining two structural components
particularly plate-shaped structural components
which extend at a right angle relative to one
5 another, a fitting has a preferably cylindrical
locking element which can be inserted either
directly in a bore in the first structural
component or it can be inserted indirectly in a
housing, and a holding piece with a holding
10 projection anchored in the second structural
component. In the assembled position, the holding
projection & abuts against one or two gripping
surfaces of the locking element which gripping
surfaces are of, for example, eccentric shape,
15 and the holding projection is pulled toward the
locking element when the locking element is

turned. The holding piece is constructed plate-shaped and is insertable in a slot in the second structural component.

U.S Patent No. 5,004,027 to Legler et al

5 illustrates a biscuit joiner. It is described as a biscuit joiner for cutting semi-elliptical slots in opposing edges of workpieces which are to be joined along those edges includes a housing adapted to be mounted upon the quill of a multi-purpose woodworking tool, which housing encloses 10 a rotary saw blade adapted to be attached to a spindle projecting from the quill on which the housing is mounted. A spring loaded guide projects from the front face of the housing and 15 has a slot therethrough, so that when the front face of the guide is engaged by an edge of a

workpiece to be slotted the guide can be pushed inwardly against spring pressure, allowing the rotary saw blade to be exposed and form a slot in

the edge of the workpiece. Adjustable stops are

5 provided on the guide so that a desired depth of

cut will automatically be made after adjustment.

An alternative construction of this biscuit

joiner is especially adapted for use in

conjunction with a conventional drill press, with

10 the arbor which carries the saw blade being

clamped in the chuck on the drive spindle of the

drill motor.

U.S Patent No. 5,377,732 to Fujii et al

illustrates a wood joining structure and method

15 thereof. It is described as a technique is

provided for joining wood members. A plurality of

slits are formed on the end portions of wood
pieces desired to be joined, and the end portions
are abutted with corresponding slits in alignment
to form a common surface. Each of the abutted
5 wood end portions is fixed by temporary fixing
means to a desired joining state. Thereafter, an
adhesive agent is applied into the interior
surfaces of the slits. Connecting plates, e.g.,
made of a reinforced plastic material coated with
10 the adhesive agent, are inserted into the aligned
slits. The adhesive agent is then hardened.

U.S Patent No. 5,458,433 to Stastny
explicates a biscuit and joint made using same.
It is described as a biscuit having octagonal
15 outer periphery is used to form a joint between
first and second workpieces. The biscuit fits

within arcuate slots formed in the workpieces,
with glue placed in the slots and/or on the
biscuit before the joint is put together. The
biscuit is made of an anhydrous compressed wood.

5 U.S Patent No. 5,529,428 to Bischof is
 directed to a metallic structural element for
 connecting workpieces consisting of wood,
 woodworking material or plastic. It is described
 as a metallic structural element for connecting
10 workpieces consisting of wood, woodworking
 material or plastic, consisting of a lamellar
 part, which provides the non-positive connection
 with the first workpiece provided with a groove
 and a transverse hole, and a bolt-like part
 which, through screwing or pinning, realizes the
15 non-positive connection with the second workpiece

provided with a longitudinal hole. The lamellar part has, in the center, a hole which is at right angles to the plane of the lamella and is intended for fixing in the groove of the workpiece. Variants having a wing-like long or rectangular short lamellar part and a bolt-like part in the form of a conical wood screw, cylindrical screw, screw having a metal thread, threaded sleeve or pin. Accessories: screwing tool and drilling template.

Notwithstanding the prior art, the present invention is neither taught nor rendered obvious thereby.

SUMMARY OF THE INVENTION

The present invention is an anchoring biscuit device for joining three boards. It

includes, (a) a first substantially flat horizontal top element having a generally biscuit-shaped top view configuration, (b) at least one substantially vertical support member attached to the underside of the top element and extending downwardly therefrom for a predetermined length to place the top element at a predetermined height for joinder of two adjacent boards which have been pre-cut with biscuit receiving slots, and, (c) an attachment component attached to at least one of the top element and the vertical support member for attachment of the anchoring biscuit device to a support board for anchoring and support of the two adjacent boards.

The present invention is also an anchoring half-biscuit device for joining two boards. This

includes, (a) a first substantially flat horizontal top element having a generally half-biscuit-shaped top view configuration, (b) at least one substantially vertical support member attached to the underside of the top element and extending downwardly therefrom for a predetermined length to place the top element at a predetermined height for joinder of two adjacent boards, one of which has been pre-cut with biscuit receiving slots, (c) at least one horizontal extended member extending outwardly from the vertical support member and, (d) an attachment component for attachment of the anchoring half-biscuit device to a support board for anchoring and support of two adjacent boards located at right angles to one another.

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BRIEF DESCRIPTION OF THE DRAWINGS

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The present invention should be more fully understood when the specification herein is taken in conjunction with the drawings appended hereto wherein:

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Figure 1 illustrates a top view of one preferred embodiment of the present invention anchoring biscuit device, Figure 2 illustrates a front view, and Figure 3 illustrates a side view thereof;

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Figure 4 shows a side view of the present invention device shown in Figures 1 through 3 but being attached to a joist and a first deck board and about to be attached to a second deck board where both deck boards are supported by that joist;

Figure 5 shows a front view of an alternative embodiment present invention anchoring biscuit device;

5 Figure 6 shows a front view of an alternative embodiment present invention anchoring biscuit device having a vertical extended member for horizontal attachment of the device to a joist and Figure 7 shows an end view thereof in use;

10 Figure 8 illustrates a top view of a present invention anchor biscuit device having a horizontal extended member and Figures 9 and 10 show front and side views thereof, respectively;

15 Figure 11 shows a top view of a present invention anchor half biscuit device and, Figures 12 and 13 show a front view and end view thereof;

respectively; and,

Figures 14 and 15 show other present invention anchor half-biscuit devices attaching two adjacent boards that are located at right angles to one another.

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DETAILED DESCRIPTION OF THE PRESENT INVENTION

In Figure 1, there is shown a top view of present invention anchor biscuit device 1.

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Device 1 includes a top element 3 having a flat top surface as shown, and a top view shape of a biscuit. Thus, it includes walls 5 and 7 in the shape of arcs having predetermined radius and predetermined arc lengths. In this case, they are perfectly symmetrical and have flat endwalls 9 and 11. Without exceeding the scope of the present invention, these biscuit shapes could be'

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slightly modified, such as having slightly non-circular arcs or linear segments at angles approximating arcs.

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Top element 3 also includes an attachment means, in this case, screw hole 13 located on center. This enables the user to nail or screw device 1 into a joist, as more fully described in conjunction with Figure 4 below.

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Figures 2 and 3 show front and end (right side) views, respectively of device 1 shown in Figure 1. Thus, device 1 includes vertical support members 15 and 17 with a space therebetween to permit a screw or nail to pass through screw hole 13 into a joist or support board. Vertical support members 15 and 17 have a predetermined height so as to rest on a joist in

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such a way as to establish biscuit top element 3 at a predetermined height from the joist for attachment of two adjacent boards thereto which have pre-cut biscuit slots corresponding thereto.

5 Figure 4 shows present invention device 1 with identical parts identically numbered.
Top element 3 (rear) is inserted into pre-cut biscuit slot 27 of horizontal beam 21, as shown.
Screw 31 is inserted into screw hole 13 and into
10 joist beam 25. This anchors device 1 to joist beam 25 and establishes the elevation of top element 3 so as to match with biscuit slot 27.
Beam 23 will be placed atop joist 25 and adjacent to beam 21 by being slid into position with wall
15 7 fitting into slot 29 and the bottom of beam 23 resting on joist 25. By this method, device 1

attaches all three boards to one another as the
biscuit aspects are typically tight-fitting.
Thus, for example, decking boards may be attached
without the need for nails or screws entering the
beams from the top.

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Figure 5 shows an alternative embodiment
present invention device 51 which has multiple
screw holes 43, 53 and 55 located in a straight
line on center of top element 47. It includes
ends 41 and 49, and it has a plurality of
vertical support members such as vertical support
members 45 and 57, with spaces therebetween for
screw or nail insertions. Device 51 is used in
the same manner as device 1 described above with
respect to Figure 4.

Figure 6 shows a front view of alternative

embodiment present invention anchoring biscuit
device 61 which includes a top element 77, a
vertical support member 67 and a vertical
extended member 71 which has a horizontal top 73
and vertical side members 75 and 81. These
5 include screw or nail holes 83, 85, 87, and 89,
respectively.

Figure 7 shows a right side view thereof
and, referring to Figures 6 and 7, together, note
10 that top element 77 of device 61 has ends 65 and
69 and arc side walls 63 and 79. Thus, as shown
in Figure 7, such as screws 97 and 99 are used to
anchor device 61 to joist 91 and sidewalls 63 and
79 are fitted in the biscuit slots of planks 95
15 and 93, respectively.

Figure 8 shows a top view of a present

invention device 101 and Figures 9 and 10 show the front and right end views thereof respectively. Top element 103 includes arced sidewalls 105 and 107 and ends 109 and 111.

5 There is a vertical support member 115 and a horizontal extended member 119 which extends outwardly from both sides of vertical support member 115 and has screw holes such as screw holes 113 and 117. Device 101 is used in a manner similar to device 61 shown in Figure 7 except that it is vertically toe-nailed or 10 screwed to a joint.

Figure 11 shows a top view of an anchoring half-biscuit present invention device 201. This 15 includes half top element 203 with end walls 211 and 209 and articulated side wall 205. It also

includes vertical support member 215 and horizontal extended member 207. Figures 12 and 13 show a front and right end view thereof with identical parts identically numbered. Referring 5 to Figures 11 through 13, note that four screw holes 213, 217, 219 and 221 are provided.

Anchoring half device 201 is utilized to connect two adjacent boards which are at right angles to one another, thus, top element 203 is 10 inserted into a biscuit slot of a first beam and is abutted to a second beam immediately below horizontal extended member 207 and screwed or nailed to device 201 using the aforesaid described screw holes.

15 Referring to Figure 14 there is shown yet another present invention anchoring half-biscuit

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device 301 which includes a top element 305 as well as a vertical support member 303 and a horizontal extended member 307. Screw holes are provided in both vertical support member 303 and horizontal extended member 307. Thus, side wall 305 is inserted into a biscuit slot on vertical beam 321, and device 301 is screwed or nailed to beam 321 (see screw 315). Beam 331 is abutted to beam 321 at right angles and device 301 is screwed thereto (for example, with screw 311).

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Referring to Figure 15 there is shown yet another present invention anchoring half-biscuit device 401, which includes a top element 405 (inverted in Figure 15 and including a half-biscuit portion 411), as well as a vertical support member 403 and a horizontal extended

member 407. Screw holes are provided only in horizontal extended member 407. Thus, half-biscuit portion 411 is inserted into a biscuit slot 413 on vertical beam 415, and device 401 is

5 screwed or nailed to horizontal beam 421 (see screw 417). Beam 415 is abutted to horizontal beam 421 at right angles and device 401 is used to secure these two beams togther as shown.

Obviously, numerous modifications and

10 variations of the present invention are possible in light of the above teachings. It is therefore understood that within the scope of the appended claims, the invention may be practiced otherwise than as specifically described herein.

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